CLAIMS

What is claimed is:

1. A broadband communication system comprising:

a first broadband communication ground station;

a second broadband communication ground station; and

a satellite constellation for conducting bi-directional broadband communication between the first broadband communication ground station and the second broadband communication ground station, at least one satellite of the satellite constellation having an inclined eccentric orbit in a first orbit plane;

wherein the satellite constellation is disposed in orbit so that when observed from a predetermined ground observation point a number of satellites, including the at least one satellite, in the satellite constellation appear to follow a substantially common path which extends through a predetermined active zone, the number of satellites moving along the common path so that the predetermined active zone has one satellite from the number of satellites continuously located therein; and

wherein the at least one satellite and at least another satellite from the number of satellites are launched into a common initial orbit plane which is different than the first orbit plane.

2. The system as in Claim 1, wherein the predetermined active zone is substantially fixed relative to the first broadband communication ground station, and the ground station has an antenna pointed at the predetermined active zone.

3. The system as in Claim 1, wherein the first broadband communication ground station is located at the predetermined ground observation point.

4. The system as in Claim 1, wherein the at least one satellite is maneuvered from the initial orbit plane to orbit in the first orbit plane.

5. The system as in Claim 1, wherein each satellite in the number of satellites has a different orbit plane, the different orbit planes being arranged to provide an optimal distribution of the number of satellites so that the number of satellites follow the substantially common path with one satellite from the number of satellites always being in the predetermined active zone.

6. The system as in Claim 1, wherein the at least one satellite is maneuvered by rotating an orbit plane of the at least one satellite from an initial orientation corresponding to the initial orbit plane to a first orientation corresponding to the first orbit plane.

7. The system as in Claim 1, wherein the orbit of the at least one satellite has an eccentricity value of about .268.

8. The system as in Claim 1, wherein the orbit of the at least one satellite has an eccentricity value of about .72.

9. The system as in Claim 1, wherein the orbit of the at least one satellite has an inclination between about 40° to 70°.

10. The system as in Claim 1, wherein the orbit of the at least one satellite has an inclination of about 63.4°.

11. The system as in Claim 1, wherein the orbit of the at least one satellite has an apogee of about 47100 km.

12. The system as in Claim 1, wherein the orbit of the at least one satellite has an apogee of about 39366 km.

13. The system as in Claim 1, wherein the orbit of the at least one satellite has a perigee of about 24500 km.

14. The system as in Claim 1, wherein the orbit of the at least one satellite has a perigee of about 1000 km.

15. The system as in Claim 1, wherein the orbit of the at least one satellite has an argument of perigee of 270°

16. The system as in Claim 1, wherein the predetermined active zone comprises an arc of about 3° centered on an apogee of the orbit of the at least one satellite.

17. A broadband communications satellite system as in claim 16 wherein the predetermined active zone is viewable from the northern hemisphere at an elevation angle equal to or exceeding 25°.